

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

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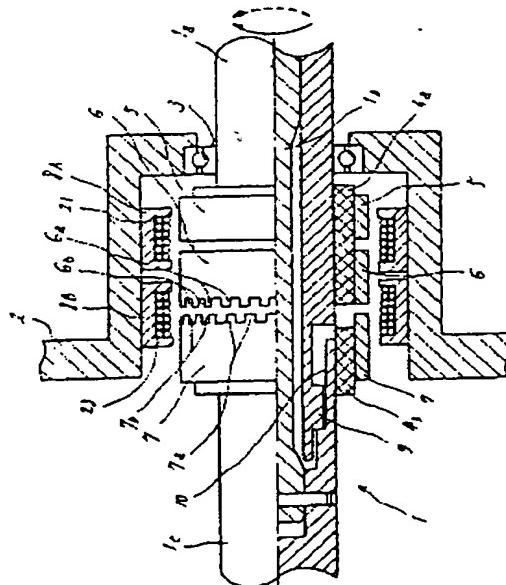
APPLICATION DATE : 25-03-88  
APPLICATION NUMBER : 63072269

APPLICANT : KOYO SEIKO CO LTD;

INVENTOR : KURAMOTO ISAO;

INT.CL. : G01L 3/10 B62D 5/04

TITLE : TORQUE SENSOR



**ABSTRACT :** PURPOSE: To improve sensitivity, by fixing magnetic cylinders to two shafts which are linked with a torsion bar, and regulating the rotating ranges of both shafts so that the gear teeth of gear parts provided at facing surfaces of both cylinders do not become complete facing patterns or complete non-facing patterns.

CONSTITUTION: A shaft 1a which is attached to a steering wheel and a shaft 1c which is attached to a steering mechanism are coaxially linked with a torsion bar 1b and rotatably supported on a case 2. Magnetic cylinders 5, 6 and 7 are fixed to the shafts 1a and 1c through nonmagnetic sleeves 4a and 4b. Gear teeth 6a and 7a and notches 6b and 7b are formed at the facing end surfaces of the cylinders 6 and 7. When torque does not act on the torsion bar 1b, one half of the width of each of the teeth 6a and 7a faces the other. The relative rotating ranges of the shafts 1a and 1c are regulated so that the teeth 6a and 7a do not have a complete facing pattern or a complete non-facing pattern. Then, the output of a detecting coil 23 is changed approximately linearly in correspondence with the rotary displacements of the shafts 1a and 1c. Therefore, the torque can be detected highly sensitively. There is no sensitivity difference with respect to rotating directions.

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